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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,294	04/10/2001	Holger Eggers	MO-6277/WW-5	5941

7590 11/06/2003
William C. Gerstenzang, Esq.
Norris, McLaughlin & Marcus, P.A.
220 East 42nd Street
30th Floor
New York, NY 10017

EXAMINER

BISSETT, MELANIE D

ART UNIT PAPER NUMBER

1711

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

1. The finality of the rejection mailed 1/24/03 has been withdrawn, and the rejections of the same action have been withdrawn based on the applicant's arguments. Also, upon reconsideration, the indication of allowability has been withdrawn. The amendment filed 8/8/03 has been entered. A non-final rejection follows.

Terminal Disclaimer

2. The terminal disclaimer filed on 8/8/03 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Application 09/807,094 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5-12, 14, and 24-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The noted claims refer to structures with multiple layers; however, claim 1 recites "single or multi-layer film". The multiple layers claimed conflict with the single layer film claimed in claim 1, thus rendering the claims indefinite. Also, claim 10 recites "said film has only polyamide-containing layers." It is unclear whether the applicant intends to

limit the film to a multi-layered film having different polyamide layers or whether the applicant intends the claim to encompass single-layered polyamide films. For the purposes of this Office action, the examiner interprets claim 1 to encompass a single-layer film comprising nylon 6 as the sole layer.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4, 10, 12-15, and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Allied-Signal. Allied-Signal (WO 93/04117) can be found cited in the applicant's disclosure.

8. Allied-Signal discloses a polymeric nanocomposite comprising a melt processible polymer and an amount of platelet particles (abstract). The reference notes the use of phyllosilicates, including montmorillonite, as swellable layered materials to be included in the composition, where montmorillonite is the most preferred material (p. 9 line 22-p. 10 line 32). It is noted that particle ranges of 0.05-0.5% (500-5000 ppm) would enhance modulus, dimensional stability, wet strength, and melt viscosity, while increasing stability of a specified crystalline phase in nylon 6 (p. 24 line 23-p. 25 line 2). This range overlaps the applicant's claimed range of 10-2000 ppm and therefore anticipates the limitation. Average particle diameters useful in the invention are 5-1000 nm, with aspect

ratios of 1000 (p. 31 lines 24-30), where average diameters of 15-300 nm are preferred (p. 32 lines 12-16). Nylon 6 is a most preferred polymeric material (p. 28 lines 3-29).

9. Regarding processing, Allied-Signal teaches the films of the invention as useful for food packaging, where film thicknesses of 10-100 μm are preferred (p. 36 line 32-p. 37 line 3). The films are extruded by a flat die and may be biaxially stretched (p. 38 lines 1-23).

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 1-2, 4, 7-10, 12-15, and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over UBE Industries. UBE Industries (EP 358415) can be found cited in the applicant's disclosure.

12. UBE Industries discloses films obtained from a polyamide resin with dispersed layered silicates (abstract). The most preferred layered silicate, montmorillonite, is a known natural aluminum silicate material (p. 3 lines 51-54). As a noted nucleating agent material by the applicant, it is the examiner's position that the montmorillonite of UBE Industries would inherently behave as a nucleating material to promote crystalline structure emanating from the particle surface. The films may be single- or multi-layered, where suggested additional layers include ethylene-vinyl acetate (p. 4 lines 39-43). Note that the applicant has suggested ethylene-vinyl acetate as a sealant layer. Examples indicate the use of polyamide 6 as a lone polyamide component with

montmorillonite (see tables). The exemplified montmorillonite has a thickness of 0.95 nm and an average size of 100 nm, lending an aspect ratio fitting the applicant's claimed range (see example 1). The reference teaches that blends including other conventional polyamides may be used (p. 3 lines 29-32).

13. Regarding film layer structures, example 8 teaches an additional adhesive layer, where the polyamide layer is the outer layer of the film. Films may be extruded and biaxially stretched to form a flat film of 15 μm thickness (example 7 with reference to example 4).

14. However, the reference does not exemplify polyamide 6/montmorillonite films having the applicant's claimed particle weight. The reference employs the use of higher loads of the montmorillonite material. In a discussion of the layered silicate component, the range of 0.05-15 parts by weight is suggested (p. 3 lines 55-56). The minimum amount of layered silicate suggested equates to 500 ppm. UBE Industries suggests that smaller amounts of the material hinder gas barrier properties and rigidity, while larger amounts of the material prevent transparency of the films (p. 3 line 55-p. 4 line 3). Therefore, it is the examiner's position that it would have been prima facie obvious to add the layered materials in any amount necessary to optimize the noted properties of the film. Motivation for choosing the smaller amounts would have been to ensure optimum transparency.

15. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wofford et al. in view of Allied-Signal.

16. Wofford discloses a thermoformable polymeric laminate comprising an EVOH layer and nucleated polyamide 6 layers, where the laminates are used for food packaging purposes (abstract; col. 3 lines 11-18; col. 3 line 67-col. 4 line 5). The reference teaches a method of filling the package with food and sealing the film (example 3). However, the reference does not specify the applicant's claimed nucleated polyamide. Allied-Signal applies as above, teaching nucleated polyamide 6, where the material is used to form films for food packaging. The films exhibit improved modulus, dimensional stability, and transparency based on the added nucleating agent (p. 24 line 3-p. 25 line 8). Therefore, it is the examiner's position that it would have been prima facie obvious to use Allied-Signal's nucleated polyamide materials in Wofford's invention to improve the noted properties of the final film.

17. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allied-Signal in view of Toyota.

18. Allied-Signal applies as above for a polyamide 6 film formed with the addition of montmorillonite. The reference teaches that the silicates are important to stabilize the gamma phase of the crystalline material (p. 24 line 33-p. 25 line 2). The films are extruded through a flat die (p. 37 line 35-p. 38 line 23). However, the reference does not note the cooling rates preferred for the process. Toyota discloses a composition comprising nylon 6 and montmorillonite, where the material is cooled at a rate of ≥ 10 °C/min to obtain a gamma crystalline structure. Thus, one of ordinary skill in the art would recognize that cooling rates of 10 °C/min would promote the gamma structure.

Also, one skilled in the art would envision the use of cooling rates in the applicant's claimed range, since Toyota suggests a rate of ≥ 10 °C/min. It is the examiner's position that it would have been prima facie obvious to employ a cooling rate of ≥ 10 °C/min in the films of Allied-Signal to optimize the stabilization of the gamma crystalline structure.

Allowable Subject Matter

19. Claims 5, 11, and 24-25 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
20. The closest prior art, Allied-Signal, discloses food packaging films comprising a nucleated polyamide 6 material. However, the reference does not specify the applicant's claimed layer structures. For these reasons, it is the examiner's position that the noted claims provide novel and unobvious steps over the closest prior art.

Response to Arguments

21. Applicant's arguments with respect to claims 1-2 and 4-25 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539 or (571) 272-1068 after December 2003. The examiner can normally be reached on M-F 8-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb


RABON SERGENT
PRIMARY EXAMINER